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High, alpha-olefin dimerisation - using mixl. of tetra:alkoxy or  
b:zyloxy zirconium and di:alkoxy aluminium chloride

23.04.79 as 775069 (1511VE)

Dimers of higher (6-10C) linear alpha-olefins by dimerisation of  
the corresp. alpha-olefins, using complex catalyst comprising Zr  
(OR)<sub>4</sub>, (where R is Et, Bu, benzyl (PhCH<sub>2</sub>), and Al(R')<sub>2</sub>Cl, (where  
R' is Et, Bu in 1:0.25, molar ratio respectively at 20-200 deg.C.  
Benzene, toluene, or methylene chloride were used as solvents.

These cpds. are used in petrochemical industry to obtain  
detergents capable of undergoing bio-degradation, emulsifiers,  
higher mercaptans and lubricants. (2pp)

## Example

A soin. contg. 0.383g Zr[OC<sub>4</sub>H<sub>9</sub>]<sub>4</sub> and 1.7g AlEt<sub>2</sub>Cl in 20 ml.  
toluene and 84g hexene-1 was placed in autoclave filled with Ar,  
and the mixt. was stirred for 48h. at 20 deg.C. The catalyst was  
decomposed with alcohol and the prods. were distilled in vacuo.  
The molecular mass was detnd. by mass spectrometry. The yield  
of dodecenes was 70%, b.p. 80-85 deg.C. at 5mm. Hg.p. Depending  
on the quant. of catalyst temp. and time of the reaction, other  
prods. obtd. analogously were: octadecene, hexadecene,  
eicosene, decene-1. BuI. 1/7.1.81.